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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,698	08/23/2006	Bernd Pfannschmidt	PFANNSCHMIDT-2	2005
20151 7590 06/04/2007 HENRY M FEIEREISEN, LLC 350 FIFTH AVENUE SUITE 4714 NEW YORK, NY 10118			EXAMINER JACOBS, DUSTIN THOMAS	
			ART UNIT 2834	PAPER NUMBER
			MAIL DATE 06/04/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/553,698

Applicant(s)

PFANNSCHMIDT ET AL.

Examiner

Dustin Jacobs

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) 12-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                   |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                              | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/17/2005</u> | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group 1, claim(s) 12-15, drawn to an electric machine with two laminated rotor cores and stator cores with axial cooling channels as well as a rings with radial channels.

Group 2, claim(s) 16-22, drawn to an electric machine (and method of cooling said machine) with a laminated rotor core and stator core where one of the cores as an axial cooling channel and a cooling channel protrusion at the end winding area.

The inventions listed as Groups 1 and 2 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group 1 refers to a first and second ring that directs the axial cooling flow radially to a discharge port, and Group 2 refers to a cooling medium via a cooling channel extension at the end winding area.

2. During a telephone conversation with Mr. Henry Feiereisen on 05/03/2007 a provisional election was made with traverse to prosecute the invention of Group II, claims 16-22. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the

requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

### ***Priority***

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. Germany 10317593.8, filed on 04/16/2003.

### ***Information Disclosure Statement***

4. The information disclosure statement (IDS) submitted on 10/17/2005 was filed before the mailing date of the application, 10/553698, on 08/23/2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Objections***

5. Claim 20 is objected to because of the following informalities: Line 7 "cooling channels us connected" is a spelling mistake, and it is to be understood by the examiner as "cooling channels is connected". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 21 is rejected under 35 U.S.C. 102(e) as being anticipated by Yoshida et al. (US Publication 2003/0075996).

Yoshida et al. '996 discloses:

- A method of cooling an electric machine by passing a coolant through at least one axial cooling channel (par. 44, lines 2-4; 28, Fig. 1) of a laminated stator core (7, Fig. 1) which is disposed in a housing (2, Fig. 1).
- Transferring the coolant from the least one cooling channel protrusion (27, Fig. 1; par. 45, lines 2-6) disposed in a end winding area (8, Fig. 1) of said stator core for discharge (par. 44, lines 1-5) of coolant from said housing.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (US Publication No. 20030075996) in view of Johnsen (US Publication No. 2003/0030333).

Yoshida et al. '996 discloses:

- An electric machine having a housing (2, Fig. 1) and a laminated stator core (7, Fig. 1) arranged in the housing (2, Fig. 1) and terminating in an end winding area (8, Fig. 1).
- Said laminated stator core having an axial cooling channel (28, Fig. 1) wherein at least one of the end winding areas (8, Fig. 1) accommodates a cooling channel protrusion (27, Fig. 1; 46, Fig. 4) in fluid communication with the cooling channel (28, Fig. 1) of the stator core (7, Fig. 1) for allowing a discharge of coolant from the housing (2, Fig. 1).

Yoshida et al. '996 does not disclose:

- A laminated rotor core arranged in the housing and terminating in an end winding area.

Johnsen '333 discloses:

- A laminated rotor core (24, Fig. 1) arranged in the housing (26, Fig. 1) and terminating in an end winding area.

The advantage of Johnsen '333 is to provide a rotor with sufficient cooling (par. 10, line 2) without significantly reducing structural integrity (par. 12, lines 2-3).

Johnsen '333 teaches that it is known to provide a laminated rotor core (24, Fig. 1) arranged in the housing (26, Fig. 1) and terminating in an end winding area. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a laminated rotor core (24, Fig. 1) arranged in the housing (26, Fig. 1) and terminating in an end winding area as taught by Johnsen '333, since Johnsen '333 states that such a modification would provide a rotor with sufficient cooling (par. 10, line 2) without significantly reducing structural integrity (par. 12, lines 2-3).

In re claim 20, Yoshida et al. '996 discloses the stator core (7, Fig. 1) has a plurality of cooling channels (28, Fig. 1) in a circumferentially spaced-apart relationship, and having cooling channel protrusions (26 and 27, Fig. 1) communicating with said plurality of cooling channels in one-to-one correspondence, wherein every other one of the cooling channels (28, Fig. 1) is connected to the cooling channel protrusions (26, Fig. 1) on one end of the member, and the other one of the cooling channels (28, Fig. 1) is connected to cooling channel protrusions (27, Fig. 1) on an opposite end of said stator core.

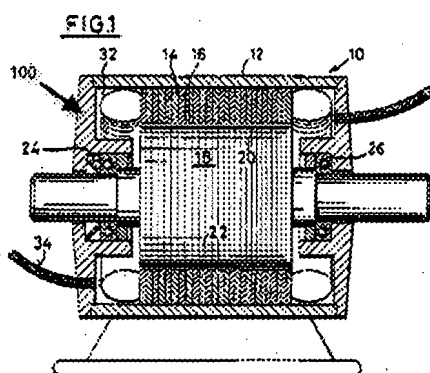
9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. '996 in view of Johnsen '333 as applied to claim 16 above, and further in view of Moretti et al. (US Patent No. 4,498,024).

Yoshida et al. '996 in view of Johnsen '333 does not disclose:

- A cooling channel protrusion of the stator core being a tube guided through the mounting plate on the housing.

Moretti et al. '024 discloses:

- A cooling channel protrusion (34, Fig. 1) of the stator core being a tube (col. 2, lines 60-61) guided through the mounting plate (edited Fig. 1) on the housing (12, Fig. 1).



The advantage of Moretti et al. '024 is to provide a cooled liquid in which the operating power losses are made negligible or kept at a desired value (col. 2, lines 24-26).

Moretti et al. '024 teaches that it is known to provide a cooling channel protrusion (34, Fig. 1) of the stator core being a tube (col. 2, lines 60-61) guided through the mounting plate (edited Fig. 1) on the housing (12, Fig. 1). It would have been obvious to



one having ordinary skill in the art at the time the invention was made to provide a cooling channel protrusion (34, Fig. 1) of the stator core being a tube (col. 2, lines 60-61) guided through the mounting plate (edited Fig. 1) on the housing (12, Fig. 1) as taught by Moretti et al. '024, since Moretti et al. '024 states that such a modification would provide a cooled liquid in which the operating power losses are made negligible or kept at a desired value (col. 2, lines 24-26).

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. '996 in view of Johnsen '333 as applied to claim 16 above, and further in view of Hasebe et al. (US Patent No. 5,889,342).

Yoshida et al. '996 in view of Johnsen '333 does not disclose:

- A rotor clamping ring assembly for maintaining integrity of the laminated rotor core, wherein the cooling channel protrusion is part of the rotor clamping ring assembly.

Hasebe et al. '342 discloses:

- A rotor clamping ring assembly (2, 21a, and 21b, Fig. 3) for maintaining integrity of the laminated rotor core (3, Fig. 3), wherein the cooling channel protrusion (22, Fig. 3) is part of said rotor clamping ring assembly.

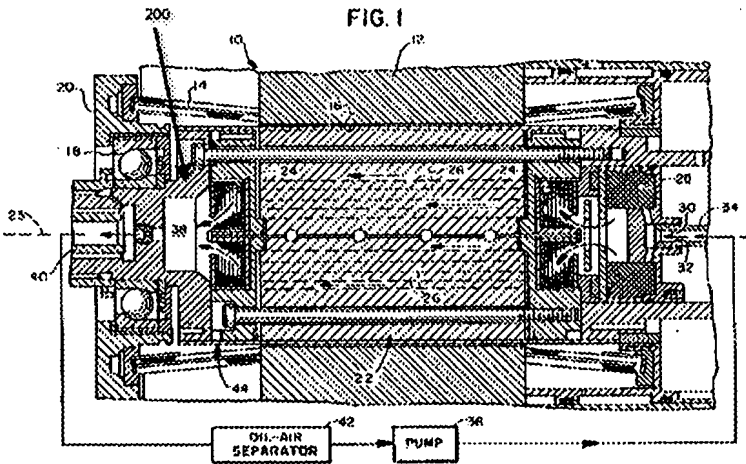
The advantage of Hasebe et al. '342 is to provide a cooling circuit for a rotor having a core fabricated of common steel sheets (col. 1, lines 57-60) and a rotor ring assembly to provide axial positioning for the rotor and communication coolant passages for the rotor core (col. 2, lines 9-10 and 17-20).

Hasebe et al. '342 teaches that it is known to provide a rotor clamping ring assembly (2, 21a, and 21b, Fig. 3) for maintaining integrity of the laminated rotor core (3, Fig. 3), wherein the cooling channel protrusion (22, Fig. 3) is part of said rotor clamping ring assembly. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a rotor clamping ring assembly (2, 21a, and 21b, Fig. 3) for maintaining integrity of the laminated rotor core (3, Fig. 3), wherein the cooling channel protrusion (22, Fig. 3) is part of said rotor clamping ring assembly as taught by Hasebe et al. '342, since Hasebe et al. '342 states that such a modification would provide a cooling circuit for a rotor having a core fabricated of common steel sheets (col. 1, lines 57-60) and a rotor ring assembly to provide axial positioning for the rotor and communication coolant passages for the rotor core (col. 2, lines 9-10 and 17-20).

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. '996 in view of Johnsen '333 and Hasebe et al. '342 as applied to claim 18 above, and further in view of Blakeley et al. (US Patent No. 5,122,704).

Blakeley et al. '704 discloses:

- The housing col. 3, line 65)) having a mounting plate (20, Fig. 1) and a rotor clamping ring assembly (200, edited Fig. 1) constructed to have a flow channel (40, Fig. 1) for guiding the coolant through the mounting plate (20, Fig. 1) and further comprising a seal (18, Fig. 1) between the rotor clamping ring assembly (200, edited Fig. 2) and the mounting plate (20, Fig. 1).



The advantage of Blakeley et al. '704 is to prevent liquid coolant from weeping into the machine air gap and cause windage losses (col. 2, lines 48-50).

Blakeley et al. '704 teaches that it is known to provide a housing col. 3, line 65)) having a mounting plate (20, Fig. 1) and a rotor clamping ring assembly (200, edited Fig. 1) constructed to have a flow channel (40, Fig. 1) for guiding the coolant through the mounting plate (20, Fig. 1) and further comprising a seal (18, Fig. 1) between the rotor clamping ring assembly (200, edited Fig. 2) and the mounting plate (20, Fig. 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a housing col. 3, line 65)) having a mounting plate (20, Fig. 1) and a rotor clamping ring assembly (200, edited Fig. 1) constructed to have a flow channel (40, Fig. 1) for guiding the coolant through the mounting plate (20, Fig. 1) and further comprising a seal (18, Fig. 1) between the rotor clamping ring assembly (200, edited Fig. 2) and the mounting plate (20, Fig. 1) as taught by Blakeley et al. '704, since Blakeley et al. '704 states that such a modification would prevent liquid coolant from weeping into the machine air gap and cause windage losses (col. 2, lines 48-50).

12. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. '996 in view of Hess et al. (US Patent No. 6,097,116).

Hess et al. '116 discloses;

- The coolant flowing through a plurality of axial cooling channels (34-37, Fig. 2; col. 5, lines 13-17) of the laminated stator core (13, Fig. 2) in circumferential spaced-apart relationship (col. 6, lines 10-15) such that coolant flows through the cooling channels alternately in opposite directions.

The advantage of Hess et al. '116 is to provide thermal isolation of the cooling of the stator and rotor in a simple manner (col. 2, lines 8-10).

Hess et al. '116 teaches that it is known to provide coolant flowing through a plurality of axial cooling channels (34-37, Fig. 2; col. 5, lines 13-17) of the laminated stator core (13, Fig. 2) in circumferential spaced-apart relationship (col. 6, lines 10-15) such that coolant flows through the cooling channels alternately in opposite directions. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide coolant flowing through a plurality of axial cooling channels (34-37, Fig. 2; col. 5, lines 13-17) of the laminated stator core (13, Fig. 2) in circumferential spaced-apart relationship (col. 6, lines 10-15) such that coolant flows through the cooling channels alternately in opposite directions as taught by Hess et al. '116, since Hess et al. '116 states that such a modification would provide thermal isolation of the cooling of the stator and rotor in a simple manner (col. 2, lines 8-10).

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Arimitsu et al. (US Patent No. 6,903,471) discloses a laminated rotor core with axial cooling channels. Kimberlin et al. (US Publication 2003/0160527) discloses a laminated rotor core with a rotor clamping ring assembly. Johnsen (US Publication No. 2003/0030333) discloses an axial cooling channel in the laminated rotor core with a cooling channel protrusions in the rotor clamping ring assembly. Hann et al. (US Patent No. 5,365,132) discloses a laminated rotor core and stator core with the stator core having axial cooling channels. Danilevich et al. (US Patent No. 4,398,108) discloses a cooling channel protrusion being a tube.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dustin Jacobs whose telephone number is 571-270-1429. The examiner can normally be reached on M-Th, 7:30am-5:00pm est.; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJ

A handwritten signature in black ink, consisting of stylized, overlapping loops and strokes.A handwritten signature in black ink, consisting of stylized, overlapping loops and strokes, positioned above a circular stamp. The stamp contains the text: DABREN SCHUBERG, SUPERVISORY PATENT EXAMINER, TECHNOLOGY CENTER 2800.

**DABREN SCHUBERG**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**